

VANAG, G.

USSR/Chemistry - Analytical

Card 1/1 : Pub. 145 - 6/14

Authors : Vanag, G.

Title : Color reactions of carbazole, indole, pyrrole and some of their derivatives with bromonitroindandione

Periodical : Zhur. anal. khim. 9/4, 217-219, Jul-Aug 1954

Abstract : The application of bromonitroindandione, for analytical determination and separation of organic bases and for qualitative identification of certain substances by their color reactions, is discussed. In ice-cold acetic acid 2-bromo-2-nitroindandione-1,3 offers a characteristic coloring when in contact with many compounds containing the pyrrole ring. The reaction with carbazole is considered the most sensitive and the reaction with tryptophan as the most specific. Reactions with other heterocyclic compounds were found to be perfectly normal. Three references: 2-USSR and 1-USA (1938-1947). Table.

Institution : Academy of Sciences, Latv-SSR, Institute of Chemistry, Riga

Submitted : April 3, 1953

16
Chloromethylation of 2-methylnaphthalene

25.13.73

naphthylacetamide, m. 128°, was prepd. as IV, but substituting aniline for NH₂. Me ester of III, yellowish oil, b. 216-20°, was prepd. by refluxing IV with MeOH and concd. H₂SO₄ for 5 hrs.

Andrew Dravnieks

VANAG, G. Ya.

USSR/Chemistry

Card 1/1

Authors : Gudrinietse, E. Yu.; and Vanag, G. Ya.

Title : Reaction of certain alcohols with 2-nitroindandione-1, 3.

Periodical : Zhur. Ob. Khim, 24, Ed. 4, 725 - 729, April 1954

Abstract : During the heating of nitroindandione with a large surplus of isopropyl or primary isobutyl alcohol takes place the splitting of the five-membered nitroindandione ring with a corresponding ester. In isopropyl alcohol phenone-o-carboxylic acid is formed. Heating of nitroindandione with a large surplus of isopropyl or benzyl alcohol or acetanethanol leads to oxidation of these alcohols into aldehyde or ketone and nitroindandione reduces to nitrosoindandione. Five references; 1 Russian since 1949; 1 German since 1888; 1 English 1933. Table.

Institution : Latvian State University

Submitted : August 31, 1953

VANAG, G.

USSR/Chemistry - Synthesis methods

Card 1/1 Pub. 151 - 31/37

Authors : Gudrinietse, E.; Neyland, O.; and Vanag, G.

Title : Nitrodimedone and some of its derivatives

Periodical : Zhur. ob. khim. 24/10, 1863-1866, Oct 1954

Abstract : A new method for the derivation of nitrodimedone through nitration of dimedone with fuming nitric acid is presented. Certain nitrodimedone salts with inorganic and organic bases, well soluble in water and alcohol, are described. The derivation of chloro- and bromo-derivatives of nitrodimedone is explained. The preparation of monosemicarbazone and monophenylhydrazone of nitrodimedone is described. Eight references: 1-8. 1954-1955.

Institution : The Latvian State University

Submitted : May 7, 1954

YANAGI, G.

USSR.

Complex cells of ~~hydroxyphenylacetic acid~~ with ~~acid~~

"APPROVED FOR RELEASE: 08/31/2001

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APPROVED FOR RELEASE: 08/31/2001

CIA-RDP86-00513R001858520007-5"

VANAGS, G.J.; MATSKANOVA, M.A.

2-nitroindandione-1,3 azine. Zhur.ob.khim. 25 no.3:580-583
Mr '55 (MLRA 8:6)

1. Latvyskiy Gosudarstvennyy universitet. Rzhskiy meditsinskiy
institut.
(Nitroindandione)

Beckman
oxime
25
1959

... of ... 1 3 ...

VANAGS, G.

5

Beckmann rearrangement of 2-methyl-2-butanol

1. Beckmann rearrangement of 2-methyl-2-butanol
2. 2-methyl-2-butanol (1.0 g, 0.01 mol) was dissolved in 10 ml of concentrated sulfuric acid.
3. The solution was stirred at room temperature for 2 hours.
4. The mixture was poured into ice water and extracted with ether.
5. The ether extract was washed with water and dried over anhydrous sodium sulfate.
6. The solvent was removed by distillation under reduced pressure.
7. The residue was purified by distillation to give 2-methyl-2-butanone (0.8 g, 80% yield).
8. Boiling point: 78-79°C/15 mm Hg.
9. Refractive index: $n_D^{20} = 1.395$.
10. IR (KBr): 1715 cm⁻¹ (C=O).
11. ¹H NMR (CDCl₃): δ 2.1 (s, 3H, CH₃), 2.4 (s, 3H, CH₃), 2.6 (s, 3H, CH₃), 3.1 (s, 3H, CH₃).

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"APPROVED FOR RELEASE: 08/31/2001

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APPROVED FOR RELEASE: 08/31/2001

CIA-RDP86-00513R001858520007-5"

VANAG, G. YA.

PHASE I BOOK EXPLOITATION NOV/8350

Sovetskoye goskhit, tekhnologii i prikladnyye protivodykh
pyridina i khinolina. Mga, 1957

Kholina, tekhnologiya i prikladnyye protivodykh pyridina i
khinolina; materialy sovetskoy khimii (Chemistry, Technology
and Utilization of Pyridine and Quinoline Derivatives)
Materials of the Conference) Mga, Izdatel'stvo AN Latvyskoy
SSR, 1960. 299 p. Brata 31. Inserted. 1,000 copies
printed.

Sponsoring Agencies: Akademiyu nauk Latvyskoy SSR. Institut
Khimii, Vsesoyuznoye khimicheskoye obshchestvo.

Ed. I. S. Bakhovai, Tech. Ed.: A. Klyavina; Editorial
Board: Yu. A. Bakhovskiy, Candidate of Chemistry, E. V.
Vasaga, Candidate of Chemistry (Resp. Ed.), L. P. Zalukayev,
Doctor of Chemistry, and M. M. Kalyn.

PURPOSE: This book is intended for organic chemists and
chemical engineers.

CONTENTS: The collection contains 33 articles on methods
of synthesizing or producing pyridine, quinoline, and
their derivatives from natural sources. No personalities
are mentioned. Figures, tables, and references accompany
the articles.

TABLE OF CONTENTS:

I. PYRIDINE AND QUINOLINE DERIVATIVES OBTAINED FROM
THE THERMAL CRACKING PRODUCTS OF PEELS

Polashnikov, M. M. (Nizhne-Talitskiy gosudarstvennyy pedagogicheskii
institut (Nizhny Tsel State Pedagogical Institute)).
Quinoline Bases Obtained From Coal Tar 43

Davlyatov, A. D. (Vostochnobirskiy filial Akademii nauk SSR
(East Siberian Branch of the Academy of Sciences USSR)). Ex-
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Institute of the Academy of Sciences USSR)). Thermal
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Petrova, L. A., and G. Ya. Vanag. (Institut khimii
Akademii nauk Latvyskoy SSR (Chemical Institute of the
Academy of Sciences Latvyskaya SSR)). Pyridine Bases From
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Belitskiy, M. M., G. D. Galitskiy, and T. I. Syrovatkinaya.
(Institut nefli Akademii nauk SSR (Petroleum Institute of
the Academy of Sciences USSR)). Methods of Determination
and the Characteristics of Total Nitrogen and Nitrogenous
Bases in Petroleum 55

Kozlov, V. A. (Institut gosplanizatsionnykh Akademii nauk
SSR (Institute of Planning of the Academy of Sciences USSR)). Separation of the p-quinoline Fraction of
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Belitskiy, M. M., and S. Malynovskiy. (Fizicheskaya khimicheskaya
Institut of the Polish Academy of Sciences; Institute for
General Chemistry (Warsaw)). Physicochemical Studies in
Pyridine Bases From Products of the Chemical Processing of
Coal 75

Vanag, G. Ya. (Institut organicheskoy sinteza Akademii nauk
Latvyskoy SSR (Institute for Organic Synthesis of the
Academy of Sciences Latvyskaya SSR)). The Transition
From 1,3-Indandione to Pyridine Derivatives 111

VANAGS, Ya.

USSR/Chemical Technology. Chemical Products and Their I-13
Application--Treatment of solid mineral fuels

Abs Jour: Ref Zhur-Khimiya, No 3, 1957, 9214

Author : Fedotova, L. and Vanag, G.
Inst : Latvian Academy of Sciences
Title : Pyridine Bases from Sapropelite Tar

Orig Pub: Izv. AN LatvSSR, 1956, No 5, 101-104 (Latvian
summary)

Abstract: The base content of tar obtained from sapropelite coal from the Spigu swamp, Dobel rayon, Latvian SSR, has been investigated; 9-10% bases were found to be present in the tar. It is shown that the bases consist principally of compounds of the pyridine and quinoline series. No primary means were found; secondary means were determined to be present. The author have investigated the pyridine-picoline fraction. Five pyridines have been separated and identified: pyridine, α -, β -, γ -

USSR/Chemical Technology. Chemical Products and Their I-13
Application--Treatment of solid mineral fuels

Abs Jour: Ref Zhur-Khimiya, No 3, 1957, 921"

Abstract: picolines, and 2,6-lutidine. A 10% H_2SO_4 solution extracts only a fraction of the bases present in the tar fraction.

Card 2/2

USSR/Patent. *VANAG, G. YA.* Toxicology. Anticoagulants. 4-5

Ann. Jour. : Ser. Jour-Biol., No 5, 1956, No 23100

Author : Vanag G. Ya., Miller S. A., Zilva L. S.,
Krasnitsky A. O., Kovaleva N. I., Kostovsk-
chikova M. I.

Inst : Not given

Title : The Study of New Anticoagulants of the Indan-
dion Derivatives Group.

Orig Pub : Farm. bol. i toksikologiya, 1956, No 8, 23-27

Abstract : The anticoagulant action (AA) of 2 indandion
preparations was studied on mice and rabbits.
The drugs were administered orally once and re-
peated during 5-6 days. It was found, that 2-ohe-
nylinandion-1.3 in a 5mg/kg dose had AA. Also
2-benzhydrylindandion-1.3, bis-phenylindandion,
and diindandionylacenaphtenon had an exceptionally
strong AA.

Card 1/1

VANAG, G.Ya.; SILARAYA, R.Ya.

Interaction of the ethyl ester of chloroindandionecarboxylic acid
with primary amines. Zhur.ob.khim. 26 no.1:68-74 Ja '56.

(MLRA 9:5)

1. Latviyskiy gosudarstvennyy universitet.
(Indandionecarboxylic acid) (Amines)

GUDRINIECE, J.; DREIMANIS, E.J.; VANAGS, G.J.

2-nitro-perinaphthindandione-1,3 and certain of its derivatives.
Zhur.ob.khim. 26 no.1:272-275 Ja '56. (MLRA 9:5)

1. Latviyskiy gosudarstvennyy universitet.
(Benzonaphthenedione)

VANAG, G YA

USSR/Organic Chemistry - Synthetic Organic Chemistry

E-2

Abs Jour : Referat Zhur - Khimiya, No 2, 1957, 4341

Author : Vanag, G.Ya., Geyta, L.S.

Title : Condensation of Acenaphthenequinone with Indandione-1,3.

Orig Pub : Zh. obshch. khimii, 1956, 26, No 2, 511-516

Abstract : By condensation of acenaphthenequinone (I) with indandione (II) was obtained 2,2-di-(indandione-1', 3'-yl-2')-acenaphthene-1 (III). On action of Br_2 the III is cleaved and gives 2,2-dibromindandione-1,3 and 2-(2'-bromindandione-1', 3'-yl-2')-2-bromacenaphthene-1. H_2SO_4 reacts with III to give 2-indandione-1', 3'-ylene-2-acenaphthene-1 (IV). To a solution of 3 g I in 80 ml glacial CH_3COOH is added a solution of 4.8 g II in 20 ml glacial CH_3COOH and 1 ml concentrated HCl , the mixture is brought to a boil and heated for 3 hours, there are obtained 6.4 g III, MP 235-236°. Prepared were the K-, piperidine and ethylamine salts of III. 4 g III are shaken

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USSR/Organic Chemistry - Synthetic Organic Chemistry

E-2

Abs Jour : Referat Zhur - Khimiya, No 2, 1957, 4341

for 15 minutes with 40 ml concentrated H_2SO_4 , the filtrate is poured into 300 ml water, there are obtained 1.95 g IV, MP 191-192° (from chloroform). 0.2 g IV heated with 10 ml alcohol and 0.1 g II are added, obtained 0.29 g III. 0.5 g IV dissolved in 10 ml $CHCl_3$ and added a solution of 1 ml Br_2 in 4 ml $CHCl_3$, obtained 0.3 g dibromide of IV, MP 201-203° (from benzene). On action of Zn-dust on the dibromide there is formed the initial IV. Heating of 1 g IV and 20 ml of a 20% solution of $N_2H_4 \cdot H_2O$ gives 0.8 g azine of IV, MP 255-256°.

Card 2/2

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VANAG G. YA.,

USSR/Organic Chemistry. Synthetic Organic Chemistry.

E-2

Abs Jour: Ref Zhur-Khimiya, No 6, 1957, 19151

Author : Vanag G. Ya., Golyta L. S.

Inst :

Title : Cyclization of 2,2-diindandionylacenaphthonone -1.

Orig Pub: Zh. obshch. khimiyi, 1956, 26, No 6, 1746-1749.

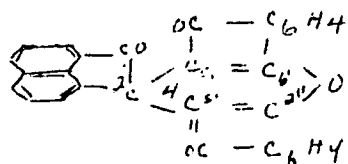
Abstract: Aconaphthenone-1-spiro-(2,4')-2',3'(O))-6', 5'-(C))-dibenzoylonopyrano (I) is synthesized and its interaction with Mg and amines is studied. To a solution of 1 g. 2,2-diindandionylacenaphthonone-1 (II) (RZhKhim., 1957, 4341) in hot $(CH_3CO)_2O$ is added 2 drops of conc. H_2SO_4 , heated 45-50 min., the precipitate is washed with glacial CH_3COOH and alcohol and I is obtained, yield 89.5%, m.p. 360° (from pyridine).

Card : 1/2

USSR/Organic Chemistry. Synthetic Organic Chemistry.

E-2

Abs Jour: Ref Zhur-Khimiya, No 6, 1957, 19151



Cyclization occurs as a result of splitting off of water from the enol form II. On boiling with an alcohol solution of KOH, I is transformed into II 0.2 g. I and 5 cc of liquid NH_3 in a sealed tube are left standing for 24 hours at $\sim 20^\circ$, acenaphthenono-1-spiro-(2,4')-2',3' (CO), 6',5'(O) dibenzoylene-1,4'-dihydropyridino (III) is obtained, crystallizing with 1 molecule of NH_3 , yield 0.19 g.; it decomposes at 166° ; after splitting off NH_3 , m.p. $374-376^\circ$ (from alc.), 1 g. I is boiled 15 min. with 2 cc aniline and 20 cc glacial CH_3COOH , N-phenyl-III, is obtained, yield 51.3%, m.p. 350° .

Card : 2/2

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VANAG, G.Ya.

GUDRINIYETSE, E.Yu.; DREYMANIS, E.Ya.; VANAG, G.Ya.

Sulfonation of β -diketones by dioxane sulfurtrioxide. Dokl. AN SSSR
110 no.5:786-788 0 '56. (MIRA 10:1)

1. Latvyskiy gosudarstvennyy universitet. Predstavleno akademikom
I.N.Nazarovym.
(Ketones) (Sulfonation) (Sulfur organic compounds)

Bibliography

PART I BOOK EXCERPTS

507/225

Chemistry, 1957, 31 p., 350 copies printed.

Ed. (Title page): A.P. Iyevskiy, Professor, Doctor of Chemistry L.I. Lepin, Member of the Academy of Sciences L.V. Kuznetsov, Professor, Doctor of Chemistry, O.A. Vasev, Professor, Doctor of Chemistry, K.I. A. Ponomarev. This book is intended for inorganic chemists and scientists in the ceramic laboratories.

CONTENTS: The book contains 22 articles on organic chemical synthesis and analysis and the physicochemical properties and compositions of ceramic and refractory materials. No personalities are mentioned. Figures, tables, and references accompany the articles.

1. Iyevskiy, A.P., Iyevskiy, L.I., and K. Goshchitsky. The Use of Sodium Isocyanophenyls in Qualitative Analysis 9
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ATLANTIC Library of Congress

Card 4/4

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VANAG, G.Ya.; DUBUR, G.Ya.

Imins of di- and poly-ketones. Part 2: Trisindandione. Zhur.ob.
khim. 27 no.10:2729-2733 0 '57. (MIRA 11:4)

1.Latviyskiy gosudarstvennyy universitet.
(Indandione)

VANAG, G.Ya.; STAKEVICH, E.I.; GREN, E.Ya.

Imins of di- and poly-ketones. Part 3: Benzalindandione. Zhur.ob.
khim. 27 no.10:2733-2736 0 '57. (MIRA 11:4)

1.Latviyskiy gosudarstvennyy universitet.
(Indandione)

VANAG G. Ya.
GUDRINIETSE, E.; MEYLAND, O.; VANAG, G.

Iodonium derivatives of β -diketones. Part 1: The reaction of
dimedon with iodozobenzene. Zhur.ob.khim. 27 no.10:2737-2740
O '57. (MIRA 11:4)

1.Latviyskiy gosudarstvennyy universitet.
(Cyclohexanedione) (Benzene)

VANAG, G. YA.

AUTHORS: Gudriniyetse, E. Yu., Kurzan, D. K.,
Vanag, G. Ya.

79-11-36/56

TITLE: 2-Nitro-5-Phenylcyclohexandion -1,3 and its Derivatives
(2-Nitro- 5-feniltsiklogeksandion -1,3 i yego
proizvodnyye).

PERIODICAL: Zhurnal Obshchey Khimii, 1957, Vol. 27, Nr 11, pp. 3087-3092,
(USSR)

ABSTRACT: In connection with the authors investigations in the field
of the nitroderivatives of cyclic β -diketones they examined
5-phenylcyclohexandion - 1,3 which in its structure resembles
5,5-dimethylcyclohexandion -1,3. The nitroderivative of
this hexandion was hitherto unknown. 5-phenylcyclohexandion
1,3 is produced by condensation of benzenesetone with
malinic acid residues. The authors improved the method
described in publications by reducing the duration of
condensation from 7 hours to 15-30 minutes. The end product
obtained in sufficient purity did not need to be
recrystallized. The nitration took place according to the
pattern used in the case of 5,5-dimethylcyclohexandion -1,3.
The aqueous solution of the synthesized 2-nitro-5-phenyl-
cyclohexandion -1,3 has strong acid properties and displaces

Card 1/2

2-Nitro 5-Phenylcyclohexandion -1,3 and its
Derivatives

79-11-28/56

the carbonic acid from the carbonates, like hydrogen sulfide from sulfides. Therefore the salt formation easily takes place. Some salts of nitrophenylcyclohexandion with organic bases were produced. Thus the synthesis of 5-phenylcyclohexandion -1,3 was improved and 2-nitro 5-phenylcyclohexandion -1,3 hitherto not described in publications was obtained. The following derivatives of this compound were also produced: salts with anorganic and organic bases; 2-halogen -2-nitro -5-phenylcyclohexandion -1,3; monosemicarbozone, the monoxim and the hydrogen chloride salt of 2-amino - 5-phenylcyclohexandion -1,3. There are 1 table. and 19 references, 4 of which are Slavic.

ASSOCIATION: Latvian State University (Latviyskiy gosudarstvennyy universitet).

SUBMITTED: October 31, 1956

AVAILABLE: Library of Congress

Card 2/2 1. 2-Nitro-5 phenylcyclohexandion-1,3-Derivatives

VANAG, G. Ya.

79-11-42/56

AUTHORS: Geyta, L. S., Vanag, G. Ya.

TITLE: Compounds With two Heminal Indandione-Groups in the Molecule (Soyedineniya s dvumya geminal'nyimi indandionovymi gruppami v molekule).

PERIODICAL: Zhurnal Obshchey Khimii, 1957, Vol. 27, Nr 11, pp. 3109-3114, (USSR)

ABSTRACT: It was found that in the reaction of indandione-1,3 with phenanthrene-quinone and acetonaphthene-quinone a carbonyl-group of these quinones condenses with two indandione-molecules, where 1 water molecule is separated and a diindandionyl derivative is produced (see formulae). In this manner one comes from the easily accessible quinones and indandione to complicated heterocyclic compounds. It was of interest to determine whether heminal diindandionyl-derivatives with simpler radicals behave in an analogous manner. In the attempts to couple indandione into different arylidenindandiones it was found that these reactions also proceed in the same way as the above-mentioned ones. Thus benzalindandione and nitrobenzalindandiones unite with indandione on the double bond and form compounds possessing two indandione-groups in the case of one carbon

Card 1/2

Compounds With two Heminal Indandione-Groups in the Molecule 79-11-42/56

atom. Benzalindandiones having nucleophilic substituents in the arylidene-group do not unite with indandione. By the action of the acetic anhydride and in the presence of concentrated sulfuric acid the heminal diindandionyl-compounds split off one water molecule from both encl-hydroxyl-groups and are converted to derivatives of pyrone. By the action of aniline these derivatives receive nitrogen instead of the oxygen bridge and form the corresponding N-phenyl-derivatives of dehydropyridine.

There are 16 references, 5 of which are Slavic.

ASSOCIATION: Institute of Chemistry AS Latvian SSR
(Institut khimii Akademia nauk Latviyskoy SSR).

SUBMITTED: October 24, 1956

AVAILABLE: Library of Congress

1. Indandione - 1,3 - Condensation reactions
2. Phenanthrene - Quinone - Condensation reactions
3. Acetonaphthene - Quinone - Condensation reactions

Card 2/2

VANAGS, G.

GENERAL

PERIODICALS: VESTIS, No. 1, 1958

VANAGS, G. Some derivatives of 2-diphenylacetylindanoine-1, 3. In Russian.
p. 107

Monthly list of East European Accessions (EEAJ) LC. Vol. 8, No. 2,
February 1959, Unclass.

VANAG, G.Ya.; AREN, A.K.

Xanthylindandione. Khim. nauka i prom. 3 no.4:537-538 '58.
(MIRA 11:10)

1. Latviyskiy gosudarstvennyy universitet.
(Indan)

SOV/156-58-4-34/49

AUTHORS: Gudriniyetse, E. Yu., Iyevin'sh, A. P., Vanag, G. Ya.

TITLE: The Sulfurization of Cyclic β -Diketones With Sulfuric Acid in the Presence of Acetic Anhydride (Sul'firovaniye tsiklicheskikh β -diketonov sernoy kislotoy v prisutstvii uksusnogo anhidrida)

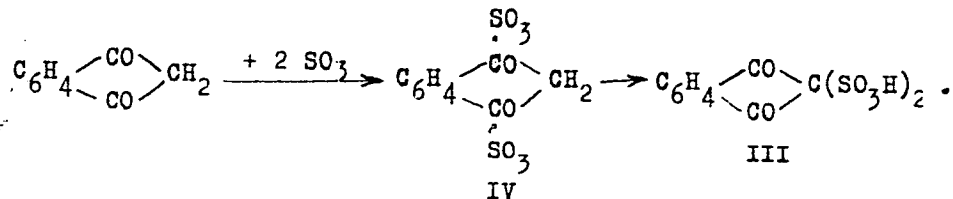
PERIODICAL: Nauchnyye doklady vysshey shkoly. Khimiya i khimicheskaya tekhnologiya, 1958, Nr 4, pp 746-750 (USSR)

ABSTRACT: The following cyclic β -diketones were sulfurized with 98% sulfuric acid in the presence of acetic anhydride: 5,5-dimethyl cyclohexanedione-1,3; 5-phenyl cyclohexanedione-1,3; indandione-1,3; 2-phenyl indandione-1,3; perinaphth-indandione and bindon. The sulfurized β -diketones were separated in form of sodium or potassium salts. The mechanism of the sulfurization with sulfuric acid in the presence of acetic acid probably proceeds according to intramolecular rearrangements. At first a dark-red colored product is formed. After 5-15 minutes a white deposit (III) precipitates.

Card 1/2

The Sulfurization of Cyclic β -Diketones With Sulfuric Acid in the Presence of Acetic Anhydride

SOV/156-58-4-34/49



There are 1 table and 12 references, 4 of which are Soviet.

ASSOCIATION: Kafedra organicheskoy khimii Latviyskogo gosudarstvennogo universiteta im. Petra Stuchki (Chair of Organic Chemistry at the Latvia State University imeni Petr Stuchka)

SUBMITTED: April 28, 1958

Card 2/2

VANAGS, G.

GENERAL

PERIODICALS: VESTIS, No. 5, 1958

VANAGS, G. Pyridazines bases of sapropelic tar. II. In Russian. p. 93

Monthly list of East European Accessions (EEAI) LC, Vol. 8, No. 2,
February 1959, Unclass.

VANAGS, G.

GENERAL

PERIODICALS: VESTIS, No. 5, 1958

VANAGS, G. Obtaining 2-nitroindandione-1,3. In Russian. p. 101

Monthly list of East European Accessions (EEAI) LC, Vol. 8, No. 2,
February 1959, Unclass.

~~VANAGS, G. ; LOZA, V. ; GEITA, L.~~

GENERAL

PERIODICALS: VESTIS, NO. 6, 1958

VANAGS, G. ; ~~LOZA, V. ; GEITA, L.~~ 4,5-dimethoxyindandione-1,3.
In Russian. p. 119.

Monthly list of East European Accessions (EEAI) LC, VOL. 8, No. 2,
February 1959. Unclass.

~~VANAGS, G. ; Koptelova, M.~~

GENERAL

PERIODICALS: VESTIS, NO. 8, 1958

~~VANAGS, G. ; KOPTELOVA, M.~~ Experimental study of the anticoagulant properties of some indandione-1,3 derivatives, In Russian. p. 93.

Monthly list of East European Accessions (EEAI) L C, VOL. 8, No. 2
February 1959, Unclass.

AUTHORS: Vanag, G. Ya., Lukevits, E. Ya., 75-13-2-19/27

TITLE: Qualitative Reaction for m-Aminophenol and p- Amino-salicylic Acid (Kachestvennaya reaktsiya na m-aminofenol i p-aminosalitsilovuyu kislotu)

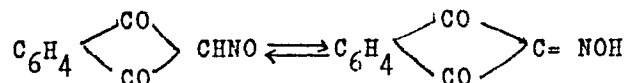
PERIODICAL: Zhurnal Analiticheskoy Khimii, 1958, Vol. 13, Nr 2, pp. 253-254 (USSR)

ABSTRACT: It was found by the authors, that green fluorescence occurs in the boiling of a solution of m- aminophenol in glacial acetic acid with 2-nitroso-indandone (1,3). If the concentration of the m-aminophenol is sufficiently high, the color of the solution changes to red. If the concentration of m-amino-phenol is very low, the fluorescence occurs only after cooling the solution. A small excess of nitroso-indandone (up to 3 mols per mol of m-aminophenol) favors the reaction, a great excess of the reagent somewhat reduces the sensitivity.

Card 1/4

75-13-2-19/27

Qualitative Reaction for m-Aminophenol and p- Aminosaliclyic Acid



The maximum dilution of m-aminophenol at which fluorescence still occurs amounts to 1: 40000. In ethyl alcohol, ether, benzene, dioxane, diluted acetic acid and even in glacial acetic acid containing a small amount of acetic anhydride no fluorescence occurs. O- and p-aminophenol give no similar reaction and therefore have no disturbing influence up to a hundred fold excess as compared to m-aminophenol. At even greater amounts of o- and p- aminophenol the solution changes to bright red and no fluorescence occurs. Phenol, resorcin, aniline and many other aromatic and aliphatic primary, secondary and tertiary amines with nitroso -indandone give no fluorescence, therefore the reaction being specific for m- aminophenol. As is known, p-aminosalicylic acid (PAS) is easily decarboxylated on heating, forming m-aminophenol. It had to be expected therefore, that PAS gives a positive

Card 2/4

75-13-2-19/27

Qualitative Reaction for m- Aminophenol and p-Aminosalicylic Acid

reaction with nitroso-indandone. A splitting off of CO_2 actually occurs at a heating of PAS with nitroso-indandone glacial acetic and gradually the liquid begins to fluoresce with a green color. With small amounts of PAS heating must be prolonged, because the decomposition of PAS does not proceed instantaneously. The maximum dilution of p-amino-salicylic acid, at which a fluorescence still occurs, amounts to 1: 28000. The ratio of the sensitivity of the detection of m-aminophenol and of PAS (40000 : 28000) approximately corresponds to the ratio of the molecular weights (153:109). From this follows, that PAS under the conditions of the reaction almost quantitatively decomposes into m-aminophenol. The representation of 2-nitroso-indandone (1,3) in small amounts (reference 1) and in greater amounts (reference 2) and the performance of the detection reactions is accurately described.

Card 3/4

75-13-2-19/27

Qualitative Reaction for m-Aminophenol and p-Aminosalicylic Acid

There are 4 references, 1 of which is Soviet.

ASSOCIATION: Latviyskiy gosudarstvennyy universitet, Riga (Riga,
Latvian State University)

SUBMITTED: November 5, 1956

1. Phenols--Chemical reactions 2. Aminosalicic acid--Chemical
reactions 3. Aminosalicic acid--Temperature factors 4. Amino-
salicylic acid--Decomposition

Card 4/4

AUTHORS: Vanag, G. Ya., Matskanova, M. A. SOV/75-13-4-20/29

TITLE: Color Reactions of Nitroindandione (Tsvetnyye reaktsii Nitroindandiona) Communication II. Reactions With Indole and Carbazole (Svobshcheniye II. Reaktsii s indolami i karbazolom)

PERIODICAL: Zhurnal analiticheskoy khimii, 1958, Vol. 13, Nr 4, pp. 485-486 (USSR)

ABSTRACT: 2-nitroindandione (1,3), $C_6H_4=(CO)_2-CH.NO_2$ yields a number of color reactions with organic compounds (Ref 1), which fact may be made use of for determinations. Pyrroles with nitroindandione yield red or orange colors in aqueous, alcoholic and acetic solutions. The authors of the present paper investigated the reaction of nitroindandione to compounds containing the pyrrole ring condensed with other rings. Indole and its homologs with nitroindandione yield a very deep red color already at room temperature. The maximum dilution where the color can still be noticed is 1:333 000 for indole. Heating accelerates the formation of the color a little. When the indole solution is not diluted to a great extent a red precipitate is

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Color Reactions of Nitroindandione. Communication II. Reactions With Indoles and Carbazole

SOV/75-13-4-20/29

separated especially on heating. The results obtained from the analogous investigations of 6 indole homologs are given. The most sensitive reaction with nitroindandione of all compounds investigated was obtained with 7-methylindole, which yields a red color which occurs in the case of heating even to a dilution of 1:5 000 000. As is known various samples of mineral oil contain porphyrin (Ref 2). Besides these porphyrins also pyrroles and indoles must be present. Mineral oil with nitroindandione actually yields the colors characteristic for indoles and pyrroles. Carbazole with nitroindandione in alcoholic solution displays an orange color on heating; the maximum dilution is 1:20 000. It was shown already earlier that also 2-bromo-2-nitroindandione (1,3) yields color reactions with pyrroles, indoles, and carbazole; the reaction with carbazole has the greatest sensitivity, while indoles and pyrroles react less sensitive. Also the reaction of bromonitro indandione with tryptophane, whereas nitroindandione with tryptophane does not yield a color reaction. The two reagents therefore supplement each other. For the purpose of checking a solution of the substance to be investigated is shaken in alcohol,

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SOV/75-13-4-20/29

Color Reactions of Nitroindandione. Communication II. Reactions With Indoles and Carbazole

glacial acetic acid or water with nitroindandione in solid form or in form of a solution. In the presence of indoles and pyrroles a color is quickly developed which is usually red or red-violet, and in the case of a high dilution it is orange. If no color is displayed the solution is heated. If the color is shown only on heating either indoles or pyrroles are present in very small concentrations, or there are indoles present which are substituted in position 2 or 3, or it is carbazole. Heteroauxin (3-indolyl acetic acid) badly reacts only little with nitroindandione. The red color formed on the heating of the acetic solution probably is caused by decomposition products. There are 1 table and 3 references, which are Soviet.

ASSOCIATION: Latviyskiy gosudarstvennyy universitet i Rizhskiy meditsinskiy institut (~~Latvian~~ State University and Riga Medical Institute)

SUBMITTED: October 6, 1956
Card 3/4

SOV/75-13-4-20/29
Color Reactions of Nitroindandione. Communication II. Reactions With Indoles
and Carbazole

1. Pentanedione--Chemical reactions
2. Indoles--Chemical reactions
3. Carbazoles--Chemical reactions
4. Dyes

Card 4/4

YANAG, E. YA.

79-1-13/63

AUTHORS: Gudriniyetse, E. Yu. , Vanag, G. Ya.

TITLE: Investigations in the Field of Cyclic Arylazo- β -Diketones
(Issledovaniya v oblasti tsiklicheskikh arilazo- β -diketonov)
I. The Condensation of Indandione-1,3 With Diazo Compounds
(I. Kondensatsiya indandiona-1,3 s diazosoedineniyami)

PERIODICAL: Zhurnal Obshchey Khimii, 1958, Vol. 28, Nr 1, pp.58-62(USSR)

ABSTRACT: In the present experiments the authors connected indandione-1,3 with different diazotized amines and their derivatives. The reaction takes place most rapidly in an alkaline, somewhat more slowly in a neutral and most slowly in an acid medium. But the final products are most purely obtained in an acid medium. The conversion of indandione with diazo salts in an acid medium is unknown, on the contrary it is pointed out in publications that cyclic diketones only react in this manner in an alkaline medium. The products of the conversion of indandione with diazo compounds - arylazoindandiones - are crystalline compounds and difficult to dissolve in ordinary

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79-1-13/63

Investigations in the Field of Cyclic Arylazo- β -Diketones. I. The Condensation of Indandione-1,3 With Diazo Compounds

solvents, especially in glacial acetic acid, dioxane and acetone. The table enumerates the products of the reaction of indandione with diazotized aromatic amines. 2-phenylazoindandione-1,3 was more thoroughly investigated. It is possible that the name of this compound does not correspond to its structure, as, according to published data, it possesses the structure of phenylhydrazone. The authors for the present are of the opinion that phenylazoindandione exists in two tautomeric forms (formulae I and II) which are in equilibrium. According to conditions the hydrazo- or the azo-form (I and II) reacts. In favor of formula II speaks the solubility of phenylindandione in alkali, under the formation of essolates which re-form the unchanged phenylazoindandione (II) on acidification. Thus the most favorable conditions for the synthesis of 2-phenylazoindandione-1,3 have been determined and a number of other 2-arylazoindandione-1,3 were synthesized. Some derivatives of phenylazoindandione-1,3 were produced, too: p-bromophenylazoindandione, p-nitrophenylazoindandione, p-sulfophenylazoindandione, the monoxym of phenylazoindandione, phenylhydrazone and the azine

Card 2/3

VANAG, G. YA.

79-1-20/63

AUTHORS: Gudriniyetse, E. Yu. , Iyevin'sh, A. F. , Vanag, G. Ya.

TITLE: The Sulfonation of β -Diketones With Dioxane-Sulfotrioxide
(Sul'firovaniye β -diketonov dioksan - sul'fotrioksidom)
II. indandione-1,3-Sulfonic Acid-2 and Its Salts (II. Indan-
dion-1,3-sul'fonovaya-2 kislota i yeye soli)

PERIODICAL: Zhurnal Obshchei Khimii, 1958, Vol.28, Nr 1, pp.95-100(USSR)

ABSTRACT: In the preceding paper it was shown that indandione-1,3 is easily sulfonated with dioxane-sulfotrioxide (= D - SO₃) on which occasion indandione-1,3-sulfonic acid-2 is produced. In publications it is maintained that the sulfonation proceeds over the enole form (see formula (I)), on which occasion the addition product is then formed, which finally in the hydrolysis yields the sulfonic acid in our case (see the process of reaction). It was, however, not possible to isolate the intermediate product (II). On addition of the indandione to the solution of D - SO₃ a reaction immediately takes place, the dissolved substance warms up (cooling with water!) and after 2 - 3 minutes indandione-1,3-sulfo-

Card 1/3

79-1-20/63

The Sulfonation of β -Diketones With Dioxane-Sulfotrioxide. II. Indandione-1,3-Sulfonic Acid-2 and Its Salts

nic acid-2 (III) is precipitated. The solution of this precipitate in water does not show any reaction to the sulfation from which follows that the assumed intermediate product (II) does not form. It seems that this reaction takes place immediately with the hydrogen of the active methyl group of indandione-1,3 that in other words the indandione joins the sulfuric-anhydride molecule under the formation of indandione-1,3-sulfonic acid-2 (III). In the case of an excess of $D - SO_3$ and at elevated temperatures indandione-1,3-disulfonic acid-2,2 (IV) is produced which is isolated as a sodium salt. The crystallized indandionsulfonic acid (III) could not be recrystallized. - Thus it was proved that the indandionsulfonic acid in contrast to 2-nitroindandione is easily converted to the enole-form and that either only one sulfo group or the sulfo group together with the enole group participate in its salification. The cobalt-, nickel- and manganese-salts of indandionsulfonic acid form complex compounds with pyridine. There are 6 references, 5 of which are Slavic.

Card 2/3

79-1-20/63

The Sulfonation of β -Diketones With Dioxane-Sulfotrioxide. II. Indandione-1,3-Sulfonic Acid-2 and Its Salts

ASSOCIATION: Latvian State University
(Latviyskiy gosudarstvennyy universitet)

SUBMITTED: December 24, 1956

AVAILABLE: Library of Congress

Card 3/3

1. Chemistry 2. Sulfones

79-28-5-14/69

AUTHORS: Neyland, O. Ya., Vanag, G. Ya., Gudrinietse, E. Yu.

TITLE: Iodonium Derivatives of β -Diketones (Yodoniyevyye proizvodnyye β -diketonov) II. Thermal Decomposition of the Phenyldimedonyliodonium (II. Termicheskoye razlozheniye fenildimedonilyodona)

PERIODICAL: Zhurnal Obshchey Khimii, 1958, Vol. 28, Nr 5, pp. 1201 - 1205 (USSR)

ABSTRACT: Earlier (Reference 1), the authors had shown that the dimedonium (5,5-dimethylcyclohexandion-1,3) reacts very easily with iodosobenzene with the formation of an iodonium compound - phenyldimedonyliodonium (formula II). The recrystallized and dried product is very stable at usual temperature, contrary to the non-purified one. But also the purified product (II) decomposes on boiling in aqueous solutions. From the decomposition products, iodized benzene and the phenylether of iodo-dimedon (III) could be separated, the composition of which is proved by cleavage with acids in phenol and conversion into the phenyl ether of dimedone (IV). This ether is easily cleft

Card 1/3

79-28-5-14/69

Iodonium Derivatives of β -Diketones. II. Thermal Decomposition of the Phenyl-dimedonyliodonium

into phenol and dimedone by acids. The decomposition of phenyldimedonyliodonium is illustrated by scheme 1. Depending on the place of the break of the C-J binding, the phenylether of iododimedone iodized benzene are obtained. The investigation on the decomposition of phenyl dimedonyliodonium shows clearly that this compound has the structure of iodonium salts. The phenyl ethers of dimedone have hitherto not been described. Thus in the thermal decomposition of phenyl dimedonyliodonium a new compound forms, namely, the phenyl ether of iododimedone, besides, still-iodized benzene and an oily product of unknown structure. In the reduction of phenyl ether of the iododimedone a new product, the phenyl ether of dimedone was obtained. In the case of direct phenylation of dimedone with diphenyl iodonium bromide new products resulted: the phenyl ether of dimedone, the phenyldimedone, the diphenyl dimedone and the phenyl ether of phenyldimedone. There are 8 references, 2 of which are Soviet.

Card 2/3

79-28-5-14/69

Iodonium Derivatives of β -Diketones. II. Thermal Decomposition of the
Phenyldimedonyliodonium

ASSOCIATION: Latviyskiy gosudarstvennyy universitet (Latvian State Uni-
versity)

SUBMITTED: April 15, 1957

Card 3/3

AUTHORS: Vana, G. Ya., Oshkaya, V. P. SOV/ 79-28-6-18/63

TITLE: 4-Nitroindandione-1,3(4-Nitroindandion -1,3)

PERIODICAL: Zhurnal obshchey khimii, 1958, Vol. 28, Nr 6,
pp. 1520 - 1524 (USSR)

ABSTRACT: Among the indandione-1,3-derivatives physiologically active compounds as well as reagents of great analytical value were found, the latter remark applying especially to the analogs of the indandione. In looking for new analytical reagents in this group the authors believe that, different from those already known, various functional groups can be introduced to the benzene ring of the indandione which fact has hitherto been little used. Based on theoretical considerations the indandione derivatives with a negative (electrophilic) substituent in the benzene nucleus might be of special interest, which also was the reason for preferring the synthesis of 4-nitroindandione-1,3 to the others. Of the two known syntheses of indandione-1,3 only the one could be taken into account which consists of the condensation of the phthalic anhydride with acetic anhydride and the isomerization of the obtained phthalic acetic acid by sodium ethylate to the indandione (see scheme 2). In the present case, however, the acetic anhydride

Card 1/3

4-Nitroindandione-1,3

SOV / 79-28-6-18/63

had to be replaced by malonic acid and the condensation had to be carried out in pyridine in the presence of some drops of piperidine at low temperature in order to obtain the nitrophthalic acetic acid (see scheme 3). The isomers which had to be theoretically expected did not have to be determined as they had to yield one and the same product in the regrouping, viz. the 4-nitroindandione-1,3 (IV), which was proved by the experiment. This final product does not crystallize well, it dissolves with an orange color in alkali liquor and on acidification is again separated as initial product. On heating with water the 4-nitroindandione-1,3 turns red-violet. The dioxime (V) proves that it contains two carbonyl groups. The product of the conversion with benzaldehyde (VI) points to the presence of an active methylene group. Thus the formula (IV) set up for the 4-nitroindandione-1,3 does not cause any contradictions. There are 6 references, 3 of which are Soviet.

ASSOCIATION: Latviyskiy gosudarstvennyy universitet i Rizhskiy khimikofarmatsevticheskiy zavod (Latvian State University and Riga Chemical-Pharmaceutical Factory)

SUBMITTED: June 10, 1957
Card 2/3

4-Nitroindandione-1,3

SOV / 79-28-6-18/63

1. Reagents--Sources

Card 3/3

AUTHORS: Matskanova, M. A., Vanag, G. Ya. SOV/79-28-10-34/60
TITLE: 1-Amino Methyl-Phthalazone-4(1-Aminomethyl-phthalazone-4)
PERIODICAL: Zhurnal obshchey khimii, 1958, Vol 28, Nr 10,
pp 2798 - 2801 (USSR)

ABSTRACT: In the reaction of the hydrazine hydrate with 2-nitro-indandione-1,3 the authors (Ref 1) obtained the 1-nitro-methyl phthalazone-4 (I). As the derivatives of the phthalazone have been proved many times to be physiologically active compounds it was of interest to obtain some derivatives of the nitro-methyl phthalazone. The authors reduced it to obtain a water soluble compound. Hydriodic acid together with red phosphorus proved to be the best reducing agent; the nitro group is easily reduced to the amine group and the formed amino methyl-phthalazone (II) is separated in form of hydrogen iodide salt. A nitro-indandionate (Ref 3) which is difficult to dissolve, is a compound with a primary amino group; it reacts with phthalic anhydride (Ref 4) under the formation of compound (III).

Card 1/2

1-Amino Methyl-Phthalazone-4

SOV/79-28-10-34/60

On the action of benzoyl chloride in alkaline medium on 1-amino methyl-phthalazone-4 the compound (IV) is formed. The form (VI) is the most probable of the three forms possible of this compound (V-VII). From the fact that also 1-phthalimide methyl-phthalazone-4 yields an acetyl derivative (XIII) in form of colorless crystals it may be seen that the amino group of the 1-amino methyl phthalazone-4 is acetylated. In pure state no base could be obtained from the salts. The reaction product of the nitromethyl phthalazone with zinc dust in the hydrogen current leads to the compound (XI) which, according to its properties, represents the indazole. There are 4 references, 2 of which are Soviet.

ASSOCIATION: Latviyskiy gosudarstvennyy universitet i Rizhskiy meditsinskiy institut (Latvian State University and Riga Medical Institute)

SUBMITTED: September 12, 1957
Card 2/2

SOV/79-28-10-35/60

AUTHORS: Geyta, L. S., Vanag, G. Ya.

TITLE: Compounds With Two Heminal Indandione Groups in the Molecule
(Soyedineniya s dvumya geminal'nyimi indandionovymi gruppami v molekule) II. Condensation of 5,6-Dinitro Acenaphthene Quinone With Indandione-1,3 (II. Kondensatsiya 5,6-dinitroatsenaftenkhinona s indandionom-1,3)

PERIODICAL: Zhurnal obshchey khimii, 1958, Vol 28, Nr 10, pp 2801 - 2805 (USSR)

ABSTRACT: In earlier papers the authors (Refs 1-6) showed that many carbonyl compounds easily condense with indandione-1,3, so that, according to the conditions prevailing in dandionylene derivatives of type (I) or diindandionyl derivatives of type (II) may be isolated. The compounds (I) easily affiliate another molecule indandione and convert into the compounds (II); the latter again can split off one molecule indandione and convert again into the compounds (I) (Scheme 1). Such reciprocal conversions were realized with the condensation products of indandione with benzaldehyde, nitrobenzaldehydes and acenaphthene quinone, whereas with phenanthrene quinone

Card 1/3

Compounds With Two Heminal Indandione Groups in the
Molecule." II. Condensation of 5,6-Dinitro Acenaphthene Quinone With
Indandione-1,3

SOV/79-28-10-35/60

and nitrophenanthrene quinone only compounds of the type (II) were obtained. In the present paper the condensation of the 5,6-dinitro acenaphthene quinone with indandione-1,3 was carried out. If the condensation takes place at a molar ratio of 1:1 in glacial acetic acid the reaction goes into two directions and red crystals of the 5,6-dinitro-2-indandionyleneacenaphthenone-1 (III) as well as colorless crystals of 5,6-dinitro-2,2-diindandionyl acenaphthenone-1 (IV). The solubility of the two products is almost the same so that a more complete separation is not so easy, and only a repeated boiling with chloroform, glacial acetic acid and a more careful treatment with warm pyridine is successful. It is known (Ref 7) that the indandione nucleus without an active hydrogen in the position 2 is easily subjected to cleavage by alkali liquor under the formation of carboxylic acid. Compound (III) easily converts to the unstable dibromide (V) under the absorption of a further molecule indandione (IV) and

Card 2/3

Compounds With Two Heminal Indandione Groups in the SOV/79-28-10-35/60
Molecule. II. Condensation of 5,6-Dinitro Acenaphthene Quinone With
Indandione-1,3

the absorption of one molecule bromine. Compound (IV)
easily is subjected to cyclization into the spiro
pyrane (VI) which on harder conditions with ammonia
and amines converts to the dihydro pyridine (VII).
There are 7 references, 6 of which are Soviet.

ASSOCIATION: Institut organicheskogo sinteza Akademii nauk Latvyskoy SSR
(Institute of Organic Synthesis, AS Latvian SSR)

SUBMITTED: August 22, 1957

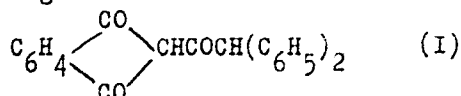
Card 3/3

AUTHORS: Ozol, Ya.K., Zelmen, V.M., Vasag, G. Ia. 304/79-28-11-40/55

TITLE: 2-Diphenyl-Acetyl-Indandione-1,3 (2-Difenilatsetilindandion-1,3)

PERIODICAL: Zhurnal obshchey khimii, 1958, Vol 28, Nr 11, pp 3083-3085 (USSR)

ABSTRACT: Of late scientists became interested in the 2-substituted indandione-1,3 because of their physiological activity. According to data in publications some of them show an antibacterial, others an insecticide activity. The 2-phenyl-indandione is an active preparation against blood coagulation and is already used in medicine. The 2-diphenyl-acetyl-indandione-1,3 (I) is still more efficient. It differs from other traditional blood anticoagulants (e.g. dicumarol, phenyl-indandione) by the fact that already in smaller doses it causes a considerable decrease of the prothrombin level of the blood. Besides, it was found that the diphenyl-acetyl-indandione is a valuable means in fighting harmful rodent.



Card 1/2

Compound (I) was synthesized by the condensation of the dimethyl

2-Diphenyl-Acetyl-Indandione-1,3

SOV/79-28-11-40/55

phthalate with diphenyl acetone. It is separated from acetone in good crystals that melt at 146-147°. The crystals are of prismatic nature (Figure). The goniometric data of the crystals are given in the table.-There are 1 figure, 1 table, and 2 Soviet references.

ASSOCIATION: Institut khimii i Institut organicheskogo sinteza Akademii nauk Latvyskoy SSR (Institute of Chemistry and Institute of Organic Synthesis of the Academy of Sciences, Latvyskaya SSR)

SUBMITTED: October 30, 1957

Card 2/2

VANAGS, G.; Zelmene, V.; Krastina, Z.

Halogenation of some 2 acylindandiones 1, 3. In Russian. p. 75.

LATVIJAS PSR ZINATNU AKADEMIJA. VESTIS. RIGA, LATVIA. No. 7, 1959

Monthly List of East European Accessions. (EEAI) LC, Vol. 9, no. 2,
Feb. 1960 Uncl.

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APPROVED FOR RELEASE: 08/31/2001

CIA-RDP86-00513R001858520007-5"

GUDRINIYETSE, E. [Gudriniece, E.] (Riga); IYEVIN'SH, A. [Ievins, A.] (Riga);
VANAG, G. [Vanags, G.] (Riga); KURGAN, D.

Research in the field of cyclic arylazo-~~A~~-diketones. IV. Metallic
complexes of phenylazodimedons. Vestis Latv ak no.9:101-105 '59.
(EEAI 9:10)

1. Akademiya nauk Latviyskoy SSR, Institut khimii.
(Aryl groups) (Ketones) (Dimethylcyclohexanedione)
(Metals) (Phenyl group) (Azo compounds)
(Complex compounds) (Nickel) (Cobalt)
(Copper) (Silver)

2. The revised schedule of the Metal Analysis of 1-

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APPROVED FOR RELEASE: 08/31/2001

CIA-RDP86-00513R001858520007-5"

STRADIN', Ya. [Stradins, J.] (Riga); VANAG, G. [Vanags, G.] (Riga)

Polarographic behavior of 2-nitroindandione-1,3. Vestis Latv ak
no.11:79-86 '59. (EEAI 9:11)

1. Akademiya nauk Latvyskoy SSR. Institut organicheskogo sinteza.
(Nitroindandione)
(Polarograph and polarography)

VANAG, G. [Vanags, G.] (Riga); DUMPIS, T. (Riga)

2-(Methoxybenzyl)-indandione-1,3. Vestis Latv ak no.12:65-70 '59.
(EEAI 9:11)

1. Akademiya nauk Latvyskoy SSR, Institut organicheskogo sinteza.
(Indandione)
(Benzyl group)
(Methoxy group)

5 (3)

AUTHORS:

Vanag, G. Ya., Gren, E. Ya.,
Stankevich, E. I.

SOV/153-2-2-13/31

TITLE:

Polycyclic Heterocyclic Compounds (Mnogoyadernyye
geterotsiklicheskiye soyedineniya). I. 4-Phenyldibenzoylene
Pyridine (I. 4-fenil-dibenzoilenpiridin)

PERIODICAL:

Izvestiya vysshikh uchebnykh zavedeniy. Khimiya i
khimicheskaya tekhnologiya, 1959, Vol 2, Nr 2, pp 210-214 (USSR)

ABSTRACT:

Recently the authors proved (Ref 1) that 4-phenyl-2,3 (CO),
6,5 (CO)-dibenzoylene pyridine (VII) develops when
benzalindandione-1,3 (II) is heated with ammonium acetate in
glacial acetic acid. The mechanism of this reaction was
explained. It proved that under the conditions of this reaction
benzylindandione (II) partially decomposes in its primary
compounds: benzaldehyde and indandione-1,3 (I). The latter
immediately is added to the active ethylene linkage of the
benzalindandione and forms diindandionylphenyl methane (III)
(Ref 2). The compounds of the latter type easily split off a
water molecule from their enol forms (IV) and result in the
corresponding pyranes (V). In these however the oxygen bridge
is replaced by nitrogen under the influence of ammonia. In this

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Polycyclic Heterocyclic Compounds. I. 4-Phenyldi-
benzoylene Pyridine

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process they changed into the corresponding dihydropyridines (VI) (Refs 3-8). It proved however that heminal diindandione compounds of the type (III) are immediately changed into the corresponding 1,4-(or 3,4 ?)-dihydropyridines (Ref 9) under the influence of ammonium acetate. The mechanism of that change is not quite clear yet. These dihydropyridines are transformed into pyridines if exposed to the air (or quicker, if H_2O_2)(see scheme). Since the method given above is the quickest way for producing aryldibenzoylene pyridines, the problem should be dealt with in detail, in order to explain its scope of application. As expected, o- and p-nitrobenzal indandiones produced the corresponding nitrophenyl-dibenzoylene pyridines (VIII, IX) (Ref 2). In contrast to further statements given in reference 2, the authors succeeded in producing the corresponding dibenzoylene pyridines by means of heating the arylidene indandione which contained a nucleophilic substitute. The reaction however takes place much more slowly and the output is much lower. Anisal, salicylal, vanillal and veratral indandiones reacted positively

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Polycyclic Heterocyclic Compounds.
I. 4-Phenyldibenzoylene Pyridine

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in producing the substances X-XIII. All of the produced phenyldibenzoylene pyridines are yellow or orange substances with a very high (often over 300°) melting point, only the ortho-derivatives are crystalline. Their chemical activity is low. The rest of their properties is described. Since the acylates of the oxy compounds under discussion are yellow, and their alkaline salts are red or red violet, one has to draw the conclusion that during the salt production a tautomeric change of the oxy compounds takes place. Finally analogies of the recently published article, reference 10, are discussed. A simplification of the synthesis of the aryl-dibenzoylene pyridines can be attained, if the arylidene indandiones are not isolated. There are 13 references, 10 of which are Soviet.

ASSOCIATION: Latviyskiy gosudarstvennyy universitet; Kafedra organicheskoy khimii (Latvia State University, Chair of Organic Chemistry)

SUBMITTED: February 10, 1958
Card 3/3

VANAG, G.Ya.; STANKEVICH, E.Yu.; ROMADAN, Yu.P.

Improvement of the method for producing hexenal. Med.prom. 13
no.9:27-28 S '59. (MIRA 13:1)

1. Institut organicheskogo sinteza Akademii nauk Latvyskoy SSR.
(HEXOBARBITAL)

5 (3)
AUTHORS:

Gudrinietse, E. Yu., Iyevin'sh, A. F., SOV/79-29-3-44/61
Varag, G. Ya.

TITLE:

Sulfonation of β -Diketones (Sul'firovaniye β -diketonov).
IV. 5,5-Dimethylcyclohexanedione-1,3-sulfo-2-acid and Its Salts
(IV. 5,5-Dimetiltsiklogeksandion-1,3-sul'fo-2-kislota i yeye
soli)

PERIODICAL:

Zhurnal obshchey khimii, 1959, Vol 29, Nr 3, pp 959-963 (USSR)

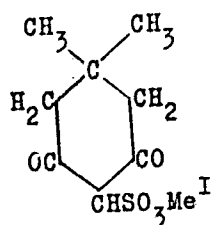
ABSTRACT:

The sulfonation of β -diketones with dioxane sulfotrioxide
(Refs 1,2) takes place easily, as well as with 98 % H_2SO_4 in
the presence of acetic anhydride (Refs 3,4). In the work under
review the authors continued this sulfonation and their
attention was specially attracted by the salts of the above
acid (dimedon sulfo acid). Besides the acid, two series of
its salts were synthesized, with an equivalent of the metal (I)
and with two equivalents (II)

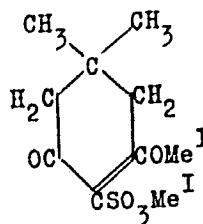
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Sulfonation of β -Diketones. IV. 5,5-Dimethylcyclohexanedione-1,3-sulfo-2-acid and Its Salts

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(I)



(II)

The acid is obtained in crystalline form. Dimedon is formed by heating with hydrochloric acid. Ammonium-, sodium-, magnesium-, calcium-, strontium-, barium-, nickel-, and cobalt salts, with an equivalent of the metal, were obtained by saturation of the aqueous solution of dimedon sulfo acid with the corresponding chloride. All metal salts, with the exception of nickel- and cobalt salt, are obtainable in crystals and are soluble in water. The aqueous solution of the salts with an equivalent of the metal has an acid reaction. The dissolved dimedon sulfo acid yields sulfo salts with organic bases (e.g. with aniline,

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Sulfonation of β -Diketones. IV. 5,5-Dimethylcyclohexanedione-1,3-sulfo-2-acid and Its Salts

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pyridine, and quinoline). With the same ease it forms salts of the enol form (II). These salts are obtained by neutralizing the aqueous solution of the sulfo acid with carbonates or hydroxides until the weakly acid or neutral reaction. The salts of alkaline and alkaline-earth metals, as well as those of copper, zinc, and manganese, have an alkaline or neutral reaction in aqueous solutions, depending on the properties of the cation. The ammonium salt of the enol form could not be obtained. As is the case with other sulfo acids, the reaction of the dimedon sulfo acid with S-benzylthiuronium chloride leads to the benzylthiuronium salt (III). There are 1 table and 5 references, 3 of which are Soviet.

ASSOCIATION: Latviyskiy gosudarstvennyy universitet (Latvian State University)

SUBMITTED: January 16, 1958

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SOV/79-29-6-26/72

5(3)
 AUTHORS: Gudriniyetse, E., Vanag, G., Strakov, A., Neyland, O.

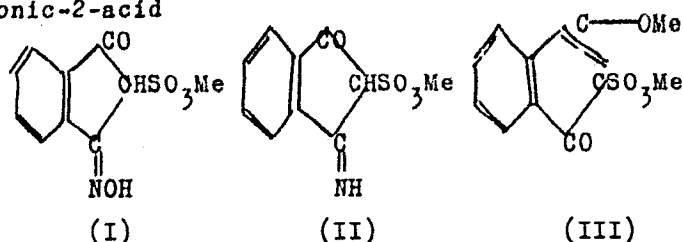
TITLE: Sulfonation of β -Diketones (Sul'firovaniye β -diketonov).
 VI. Derivatives of Indandione-1,3-sulfonic-2-acid (VI.Proiz-
 vodnyye indandion-1,3-sul'fo-2-kisloty)

PERIODICAL: Zhurnal obshchey khimii, 1959, Vol 29, Nr 6,
 pp 1893 - 1897 (USSR)

ABSTRACT: There are no data available in publications regarding the
 derivatives of the keto group of the sulfonic acids of the
 ketones and aldehydes (Ref 1). Although the dioxime of the
 indandione-1,3-sulfonic-2-acid obtained from its dipotassium
 salt and hydroxylamine hydrochloride in the presence of K_2CO_3
 was described (Ref 2), the authors were not able to attain
 the same results, neither with the disodium nor with the di-
 potassium salt of this acid. On addition of alcohol the initial
 product, and not the dioxime described, precipitated.

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Sulfonation of β -Diketones. VI. Derivatives of Indandione- SOV/79-29-6-26/72
1,3-sulfonic-2-acid



The experiments under review indicated that the oxime (I) is readily formed on boiling of the sodium salt of the indandione-1,3-sulfonic-2-acid in glacial acetic with hydroxylamine-hydrochloride, even without anhydrous sodium acetate. It is hardly soluble in water and is transformed by bromination to give the 2,2-dibromo-indandione-1,3. The oxygen of the keto group of the sodium salt of the acid mentioned is substituted by the imino group with compound (II) being formed in the $\text{Me}=\text{NH}_4$. When treating compound (II) with the alcoholic solution of sodium hydroxide or sodium ethylate compound (IV) ($\text{Me}=\text{Na}$) was formed, the bipolar structure of which was confirmed by the ultraviolet absorption spectra. A number of derivatives of the indandione-1,3-sulfonic-2-acid was thus synthesized (the oxime, semicarba-

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Sulfonation of β -Diketones. VI. Derivatives of
Indandione-1,3-sulfonic-2-acid

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zone, imine and phenyl-imine in the form of the sodium, ammonium or aniline salts). Bromination of the sodium salt of the oxime of the above-mentioned acid and of the ammonium salt of the imine of the same acid (V) yielded 2,2-dibromo-indandione-1,3. Phosphorus pentachloride forms with the sodium salt of the acid the 2-chloro-indandione-1,3-sulfonic-2-acid-chloride. Its bromination results in 2-chloro-2-bromo-indandione-1,3. When boiling the sulfo-chloride with alcohols SO_2 develops, which is transformed into 2,2-dichloro-indandione-1,3. There are 1 figure and 11 references, 6 of which are Soviet.

ASSOCIATION: Latviyskiy gosudarstvennyy universitet (Latvian State University)

SUBMITTED: May 19, 1958

Card 3/3

5(3) SOV/20-125-3-23/63
 AUTHORS: Vanags, G. J., Academician AS Latvyskaya SSR, Dumpis, T. T.
 TITLE: A New Method of Synthesizing 2-Aralkyl Indandiones-1,3 (Novyy sposob sinteza 2-aralkilindandionov-1,3)
 PERIODICAL: Doklady Akademii nauk SSSR, 1959, Vol 125, Nr 3, pp 549-552 (USSR)
 ABSTRACT: An efficient anticoagulant of blood: 2-phenyl-indandione-1,3 (Refs 1-6), known as "fenilin" in the USSR, is at present especially noted among the indandione-1,3 derivatives, since it has various advantages compared with dicumarine. It is possible that other derivatives, e.g. amino derivatives of "fenilin" may be used in practice as well (Refs 7-9). In this connection the next analogue of "fenilin", i.e. the 2-benzyl-indandione-1,3 (IV Ar = C₆H₅) is interesting as well. Only a derivative (II) of the latter is known (Refs 10,11). The production of the indandione-1,3 which was tried by means of 3 methods (Refs 13, 10,11) failed. The general method of production of 2-substituted indandiones is based upon the ~~Kleiser~~ (Klyayzen) condensation of dialkyl phthalate with esters of the monocarboxylic

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A New Method of Synthesizing 2-Aralkyl Indandiones-1,3

acids (Ref 14). neither the physical properties nor the yields of the 2-benzyl indandione-1,3 thus produced are given in reference 11, the authors worked out a new method: the substances mentioned in the title are produced (IV) by the hydration of the 2-arylidene indandiones-1,3 (III). Aromatic aldehydes may be easily condensed with indandione-1,3 and form 2-arylidene indandiones-1,3 (III). Further transformations of the 2-benzal indandione-1,3 (III Ar = C₆H₅) under the action of sodium hydrogen sulfite (V) by the Wojack reaction (Refs 11, VI) are given. Table 1 shows the seven aralkyl indandiones produced by the hydrogenation of the arylidene indandiones with sodium hydrogen sulfite. Dialkyl amino arylidene indandiones do not form bisulfite compounds, therefore the yields of the dialkyl amino benzyl indandiones are higher. Good yields were obtained by the hydrogenation of the benzal indandione by hydrogen in the presence of skeleton nickel. A special communication on this topic follows. An experimental part gives the usual data. There are 1 table and 16 references, 6 of which are Soviet.

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A New Method of Synthesizing 2-Aralkyl Indandiones-1,3

ASSOCIATION: Institut organicheskogo sinteza Akademii nauk Latviyskoy SSR
(Institute of Organic Synthesis of the Academy of Sciences
of the Latviyskaya SSR)

SUBMITTED: December 12, 1958

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5 (3)
AUTHORS:

Vanag, G. Ya., Member of the Academy SOV/20-125-4-30/74
Academy of Sciences of the LatvSSR, Lukevits, E. Ya.

TITLE:

Interaction Between 2-Bromo-2-Phenylindandione-1,3 and
Grignard Reagents (Vzaimodeystviye 2-brom-2-fenilindandiona-1,3
s reagentami Grin'yara)

PERIODICAL:

Doklady Akademii nauk SSSR, 1959, Vol 125, Nr 4, pp 801-802
(USSR)

ABSTRACT:

It was assumed (Ref 2) that in connection with the interaction between 2,4-dibromo-2,4-dimethyl pentanone-3 and methyl magnesium iodide (2,2,4-trimethyl pentanone-3 is formed) (Ref 1) a bromine atom in α -position to the carbonyl group is replaced by MgJ. As later explained, in this reaction a derivative of the enol-form of ketone forms (Refs 3, 4). Also in the case of the halogen-substituted β -diketones halogen was found to be replaced by hydrogen under the action of the Grignard reagent (Ref 5). In the latter case a reaction scheme (Ref 6) was suggested (see scheme). If the α -halogen ketone is considerably enolized the halogen is not exchanged for hydrogen, but hydrogen of the enol group reacts with the Grignard reagent (e.g. see scheme; Ref 7). In the case of an interaction of the

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Interaction Between 2-Bromo-2-Phenylindandione-1,3
and Grignard Reagents

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substance mentioned first in the title (II) with trimethyl silyl methyl magnesium chloride the authors observed the formation of 2-phenylindandione-1,3 (III). In order to be able to check the scheme of reference 6 the authors carried out the reaction of (II) with ethyl magnesium iodide. When equivalent amounts of the reagents were taken it was possible to isolate (III) from the reaction mass. In the case of an excess quantity of ethyl magnesium iodide the second carbonyl group reacted also and 3-ethyl-2-phenylindanol-3-on-1 (IV) was obtained. The latter was transformed into 3-ethyl-2-phenylindanone-1 (V) (Ref 8). In connection with the investigation of the Grignard reagent it was found that phenol magnesium bromide and iodide give a bluish luminescence in the case of an oxidation in the air. The luminescence is soon over in order to occur again under friction. The luminescence of iodide is less intensive than that of bromide. In the case of methyl magnesium iodide and ethyl magnesium bromide no luminescence was observed. The usual data are given in the experimental part. There are 10 references, 3 of which are Soviet.

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Interaction Between 2-Bromo-2-Phenylindandione-1,3
and Grignard Reagents

SOV/20-125-4-30/74

ASSOCIATION: Institut organicheskogo sinteza Akademii nauk Latviyskoy SSR
(Institute of Organic Synthesis of the Academy of Sciences
of the Latvian SSR)

SUBMITTED: November 12, 1958

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~~5 (2,3)~~ 5.3610

66419

AUTHORS: Gudrinietse, E. Yu., Yanag, G. Ya., SOV/20-128-6-23/63
Academician, AS LatvSSR, Sakhar, L. Yu.

TITLE: Condensation of the Sodium Salt of Ethyl Esters of Indandione-
1,3-carboxylic-2-acid With Diazotized Nitroanilines

PERIODICAL: Doklady Akademii nauk SSSR, 1959, Vol 128, Nr 6, pp 1182 - 1184
(USSR)

ABSTRACT: There are no publication data on the interaction of indandione-
1,3-derivatives with aryl-azo compounds. If the interaction re-
action of the latter with esters of cyclohexanone-carboxylic
acids is carried out in a neutral or weakly acid medium, cyclane-
dion-aryl hydrazones are formed (Refs 10-12). In a strongly al-
kaline medium, the ring is disrupted, and aryl hydrazones of
keto-dicarboxylic acids are formed (Refs 12-16). The authors in-
vestigated the products of the condensation reaction of the o-,
m-, and p-nitroanilines mentioned in the title with the sodium
salt also mentioned there. Apparently, the reaction proceeds
with a displacement of the reaction center (Ref 18), not accord-
ing to Dimroth's mechanism (Refs 19,20). The aryl-azo compounds
(I) obtained by the authors are yellow, insoluble in water, but
well soluble in methanol, ethanol, acetone, ether, glacial

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Condensation of the Sodium Salt of Ethyl Esters of Indandione-1,3-carboxylic-2-acid With Diazotized Nitroanilines SOV/20-128-6-23/63

acetic acid, and dioxane. On heating an alcoholic solution, the corresponding 2-(nitrophenyl)-hydrazone-indandiones-1,3 (II, see Diagram) are formed. (II) were also obtained in an alkaline medium (pH~8-9). The ethyl ester of the 2-(p-nitrophenyl)-azo-indandione-1,3-carboxylic-2-acid (Ia) crystallizes from diluted ethanol with 1 molecule of water, and yields a monoxime. On boiling the alcoholic solution, 2-(p-nitrophenyl)-hydrazone-indandione-1,3 (II) is formed. The ethyl ester of the acid (Ia) dissolves in alkalis while the color turns into red. At the same time, the indandione ring is hydrolytically split, and the sodium salt of the ethyl ester of the p-nitrophenyl hydrazone of o-carboxy-benzoyl-glyoxalic acid is formed. On acidification of the solution, this acid (III) is also separated in the form of a yellow precipitation. The red disodium salt (IV) of the acid (III) was isolated by heating the azo ester (Ia) with sodium ethylate in ethanol. Besides, the well water-soluble salts of the acid (III) were produced: monoammonium-, di-diethylamine-, and di-piperidine salts. The acid (III) is resistant to hydrolysis, and splits off the ethoxyl group only after boiling in an acetic

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Condensation of the Sodium Salt of Ethyl Esters of Indandione-1,3-carboxylic-2-acid With Diazotized Nitroanilines SOV/20-128-6-23/63

sulphuric-acid mixture for 5 hours. Here, the p-nitrophenyl hydrazone of the o-carboxyphenyl glyoxal (V) is formed. Thus, the authors succeeded for the first time in producing derivatives of cyclic β -diketones. There are 20 references, 5 of which are Soviet.

ASSOCIATION: Rihzskiy politekhnicheskii institut (Riga Polytechnic Institute)

SUBMITTED: June 29, 1959

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